

FIGURE 1A

1	CCCCGCGTCGGTCTTCCACCTCACCTTTTCGAGCTGGCCGCCGCTTGCTGTGCGCAGTTTC	60
61	GGGGGACTGGACCTTCCTGGCTTTTAGCAGCGCCGAGCGCCATGGCGACCCTTTGCTGG	120
121	GCAGGTGACCGATTCCGGGTGCCCCGAAGGAGCTGGCGTGGGTCTGCCTTGCAGCCGCCCG	180
181	CCTGGACAGGATGTTTGTAGAGGGCTGAAGAGGAAATATGGTGACCAGGAAGAAGGAGT	240
1	M F A R G L K R K Y G D Q E E G V	17
241	AGAGGGTTTTGGCACTGTCCCTTCTATAGCCTGCAGCGACAGTCACTCCTGGACATGTC	300
	E G F G T V P S Y S L Q R Q S L L D M S	37
301	CCTTGTCAAGCTCCAGCTCTGTACATGCTAGTGGAGCCCAATCTCTGCCGCTCGGTCT	360
	L V K L Q L C H M L V E P N L C R S V L	57
361	CATCGCCAACACAGTCCGGCAGATCCAGGAGGAAATGAGCCAGGATGGTGTGTGGCATGG	420
	I A N T V R Q I Q E E M S Q D G V W H G	77
421	GATGGCACCCCAGAATGTAGATCGGGCACCAGTTGAACGCCTGGTGTCCACAGAGATCCT	480
	M A P Q N V D R A P V E R L V S T E I L	97
481	GTGTCGTACAGTGAGGGGAGCTGAGGAAGAGCACCCTGCTCCTGAACTGGAAGATGCTCC	540
	C R T V R G A E E E H P A P E L E D A P	117
541	CTTGCAAACTCGGTTTCCGAGCTCCCCATCGTTGGCTCAGCACCAGGGCAAAGGAACCC	600
	L Q N S V S E L P I V G S A P G Q R N P	137
601	TCAGAGCAGCCTCTGGGAGATGGACAGCCCACAAGAAAACAGGGGAAGCTTTTCAGAAGTC	660
	Q S S L W E M D S P Q E N R G S F Q K S	157
661	ACTGGACCAGATATTTGAGACCCTGGAGAACAAAACCTCCAGTTCAGTGGAGGAACCTCTT	720
	L D Q I F E T L E N K N S S S V E E L F	177
721	CTCAGATGTGGACAGCTCCTACTATGACCTGGACACAGTGCTAACAGGAATGATGAGTGG	780
	S D V D S S Y Y D L D T V L T G M M S G	197
781	GACCAAGTCCAGTCTCTGCAATGGCCTTGAGGGCTTTGCTGCAGCCACCCCTCCTCCCAG	840
	T K S S L C N G L E G F A A A T P P S	217
841	TTCCACTTGCAAGTCTGACCTGGCTGAGCTGGACCATGTGGTAGAGATTCTGGTGGAGAC	900
	S T C K S D L A E L D H V V E I L V E T	237
901	CTGAGAGGCCACCCAGTGGGCTAAGGGTGAGGCCACCAGTCCCCATGGAGCTCACGTGT	960
	*	
961	GTTGTGACCCAGAGACAGATAAGCACTTGTCTTAAGAGGGGCTCTGGCTCTTGAGCTCAT	1020
1021	TATCCTTTTGTGTGACATTGGACTCACTGTGGAGGATGGTGTGTACAGCTATGTCTAGT	1080
1081	CTATTTTCAATTAGATAGCTGAACCTTTCTAAAATTAAGTTTATATGTTTTTGGGCAATA	1140
1141	TTTTGTCTTAAGATATATTTTTTAAACTTTTTTATACCTTAGATTTTTTTCAGCTATTTTC	1200
1201	TTAAAAGTATATTTTTTCTACAAACATCCTCTGCTGCTACATAGAAAACATTTATAACCT	1260
1261	AAATACGATTGGTGTGTCTATTTTAAAGGTTTAAATAGAAAACCTTCTTTTGTACTGAGTC	1320
1321	TCTACACTCCCAAGGCAACTGTAAATGTAGCCGGCCGGGTGTTACATGAGAGGCTCCAG	1380
1381	TATGGTCTACATTCTAGTAGAGCTTGAAAAGAACCATGCACAGCTCCACTGCCCCCTCAC	1440
1441	TGGGTCTGCTCTGGCGGATCGGAGCTCTCTTCTAGCCCCGTGTGCAGGATGGCTTTATT	1500
1501	TATGCCTATTTATATGTAAATGCCACTGAAAGCTAAGGTCTTACTCCTGGAAATCCCAAC	1560
1561	ACCAGTTCTTCAGGGACTGCTGTGAGGCAGTGCCTTATGCAGGTCTGTCTCTTGGCCATC	1620
1621	ACTGTCTGGTTCCAGCCAGCACATGTGACATGAGGACATGACATGCCCCGAACCACCCA	1680
1681	GCACCACATGTCCATGTCAAGTGTGTACGTGGAGACCACTGGCTCCCAGGCCTGTGCTC	1740
1741	AGAGAGGGTGTGCAGTCTACGTGTGCTGGGGGGGACGACGGTGACCTGTGCTTGCTTGC	1800
1801	TTTTAAAATGGTGTCTGGACGTTTAAAGGTTAAAAACAATCCGACTCCATATGATTTAGG	1860
1861	GCTCTCCACCCTGGGGTGGCCCTATGCTGTCTGCTTGGATCTCAAAGTCTTGGTACTC	1920
1921	GGCACTGTGAGACTCCACCCATGTATCCTTTTTGTTTCTTGTGCTTTTTTTGGACTT	1980
1981	CCCAACCTGAGCCTAAGGTTTATTTTATATGTGCTTCAATATCAACAATGTAAACCTCA	2040
2041	CTTTATTAAAGTATCCAGCAAATGGAAAAA	

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FIGURE 1B

1 GGG AAGCTGGCGGCACAGCCGTGGCGCCTGGCTGAGCAGAGGACCCGGCGGGCGGCCTCG 60
61 CGGGTCAGGACACAATGTTTGCACGAGGACTGAAGAGGAAATGTGTTGGCCACGAGGAAG 120
1 M F A R G L K R K C V G H E E D 16
121 ACGTGGAGGGGAGCCCTGGCCGGCTTGAAGACAGTGTCTCATACAGCCTGCAGCGGCAGT 180
V E G A L A G L K T V S S Y S L Q R Q S 36
181 CGCTCCTGGACATGTCTCTGGTGAAGTTGCAGCTTTGCCACATGCTTGTGGAGCCCAACC 240
L L D M S L V K L Q L C H M L V E P N L 56
241 TGTGCCGCTCAGTCCCTCATTGCCAACACGGTCCGGCAGATCCAAGAGGAGATGACGCAGG 300
C R S V L I A N T V R Q I Q E E M T Q D 76
301 ATGGGACGTGGCGCAGTGGACACCCAGGCTGCAGAGCGGGCGCCGCTCGACCGCTTGG 360
G T W R T V A P Q A A E R A P L D R L V 96
361 TCTCCACGGAGATCCTGTGCCGTGCAGCGTGGGGGCAAGAGGGGGCACATCCTGCTCCTG 420
S T E I L C R A A W G Q E G A H P A P G 116
421 GCTTGGGGGACGGCCACACAGGGTCCAGTTTCTGACCTTTGCCAGTCACCTCAGCAC 480
L G D G H T Q G P V S D L C P V T S A Q 136
481 AGGCACCAAGGCACCTGCAGAGCAGCGCCTGGGAGATGGATGGCCCTCGAGAAAACAGAG 540
A P R H L Q S S A W E M D G P R E N R G 156
541 GAAGCTTTCACAAGTCACTTGATCAGATATTTGAAACGCTGGAGACTAAAAACCCAGCT 600
S F H K S L D Q I F E T L E T K N P S C 176
601 GCATGGAAGAGCTGTTCTCAGACGTGGACAGCCCTACTACGACCTGGACACAGTACTGA 660
M E E L F S D V D S P Y Y D L D T V L T 196
661 CAGGCATGATGGGGGTGCCAGGCCGGGCCCCCTGCCAAGGGCTCGAGGGCTTGGCTCCGG 720
G M M G G A R P G P C E G L E G L A P A 216
721 CCACCCAGGCCCTCAGCTGCAAGTCCGACCTGGGCGAGCTGGACCACGTGGTGG 780
T P G P S S S C K S D L G E L D H V V E 236
781 AGATCCTGGTGGAGACCTGAGCAGGAGCCCTGAGTGCTCACAGCCGCCTCTGACGCATTG 840
I L V E T * 241
841 ACACGTGAGCACTGGCTCCACGAGGGTGCGCCTGCCGCCAGCGGCCAGCCTTGCTGC 900
901 CCTGTCTGCTGATTCTGAGAAATCCCAGAACAGCCATTACCAGTGGGGCTGCAGCCCTA 960
961 GGCCCGTCCCACTCACCTCCCCCTGTGGAGCGCCAGGCAGAGGCTGTTCTGGAAGGCTT 1020
1021 CTTGTCTTCTGACGTCCCCACAGCCCTGGGCCCCCTCGTGTCTCTTTGTGTCCCCCACTGT 1080
1081 AGAGGACGGTGAGCCGCAGCTGCATCAACCTCCTTTTACCTTTAGATAGGTGAATTTTAA 1140
1141 CAATTCAGTTTTACATGTTTTGGGCAGTATTTTGTCTTAAGATATATTTTTTAACTTTT 1200
1201 TATACCTTATCTCTTTAGATTTTTTTCAGCTATTTTCTTAAAAGTATATTTTTTCTATAAA 1260
1261 CATCCTTTGCTGCTACATTAGAACTTTTATAGCCTAAACAATTGCAGTTGGTGTGTTTCA 1320
1321 TTTTTTTAAGGTTTAAATAAGGGTTTTTTGTTTTGTTTTGTTTTTGCAGTGAGCATCAC 1380
1381 TACAGTCTCAGTCAACAGTGTGAATGTATCATGTTTTACTTTAAATGTGTGTGTGATACT 1440
1441 TCTTCATTATGTCTCGCTGCAGTGAGACCTGGGTGAAATCAGGAGCCGCACACAGCC 1500
1501 ACATCTTCCTAGACCTAAGAGTAAATTATGGAGGATTTTATTTATGTCTATTTTATATGTA 1560
1561 AATGTCAATTGAAGACAAAGGTCAAATATTTGTCTGTTTGTAGATCACAGGCACCAAGTTGG 1620
1621 TCTTCAGGGACCTCATAGCCCTCGGTGGTGCCTTCTCAAGGCAGTGTTCCTGGAGGCTC 1680
1681 CCATCAGGGTCAGCCCATGCACCTGCCCTGGGTGAGGAAGTAGCATTGCTGCTGGATGAG 1740
1741 AAACGCCTGCGCTGCTCTGTAGACTGGTGTGAAACAAAAGGTTAAGGCTAGGTTGAAG 1800
1801 TCTAGAATGAAAGAAATCTGAATCCATGTCAATTCATAACCCCTTGATCTGTAGTGTCTATG 1860
1861 GGTGCTGCCGCAGGCAGGAGTGTAGCTGGGGGTGCCTGCAGCCTTCCACTCCTGCCCCGC 1920
1921 CTCACCCACATGCTCCCTGTTTCTCATGCTTTCTCTAACTTCCTCACCCCTTAACCAAAA 1980
1981 AAGGTGTGTTTTCTTTTGTGCATATAGCCATTCTTAAATATCAGTGATGTAAACCTCACT 2040
2041 TTATTAATAAAATTATCCAGCAAAAAAAAAAAAAAAAAAAAAA

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FIGURE 2

Mouse Hepp	1	MFARGLKRKYG-----DOEEGVGFGTVPSYSLQRQSLDMSLVKLQLCHMLVEPNLCRSV
Human HEPP	1	MFARGLKRKCVGHEEDVEGALAGLKTVSSYSLQRQSLDMSLVKLQLCHMLVEPNLCRSV
Mouse Hepp	57	LIANTVRQIQEEMSQDGVWEGMAPONVDRAPVERLVSTEILCRTVRGAEEHPAPELEDA
Human HEPP	61	LIANTVRQIQEEMTQDGTWRTVAPOAAERAPLDRLVSTEILCRAAWGOEGAHAPAGLGDG
Mouse Hepp	117	PLQNSVSELPVIGSAPGORNPOSSLWEMDSPOENRGSFQKSLDQIFETLENKNSSSVEEL
Human HEPP	121	HTQGPVSDLCPVTSAGAPRHLOSSAWEMDGPRENRGSFHKSLDQIFETLETKNPSCEEL
Mouse Hepp	177	FSDVDSYYDLDTVLTGMMSCGKSSLCNGLEGFAAATPPSSCKSDLAELDHVVEILVE
Human HEPP	181	FSDVDSYYDLDTVLTGMMGCAEPGPCEGLEGLAPATPGPSSCKSDLAELDHVVEILVE
Mouse Hepp	237	T
Human HEPP	241	T

FIGURE 3

Zebrafish Hepp	1	MFSKGLKRKFADGGEETSDGLVAARVASSYSLQRQSLDMSLVKLQLCHMLVEPNLCRS
Mouse Hepp	1	MFARGLKRKYG-----DOEEGVGFGTVPSYSLQRQSLDMSLVKLQLCHMLVEPNLCRS
Human HEPP	1	MFARGLKRKCVGH-EEDVEGALAGLKTVSSYSLQRQSLDMSLVKLQLCHMLVEPNLCRS
Zebrafish Hepp	61	VLIANTVRQIQEEMTHDGSWEMVTEAFCGASQSPSERLVATEVLCR-----
Mouse Hepp	56	VLIANTVRQIQEEMSQDGVWEGMAPONVDR--APVERLVSTEILCRTVRGAEEHPAPEL
Human HEPP	60	VLIANTVRQIQEEMTQDGTWRTVAPOAAER--APLRLVSTEILCRAAWGOEGAHAPAGL

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FIGURE 4B

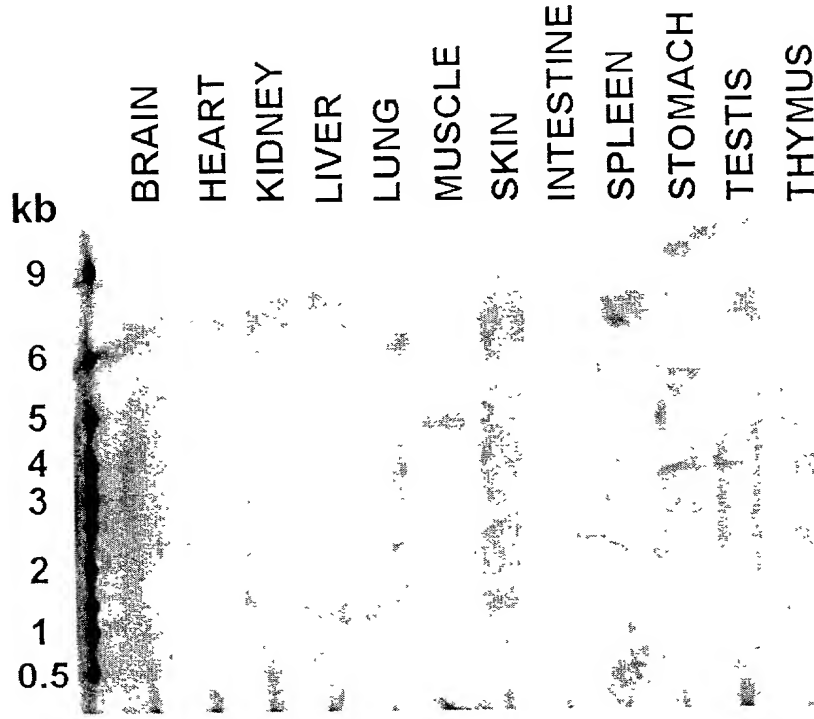


FIGURE 4A

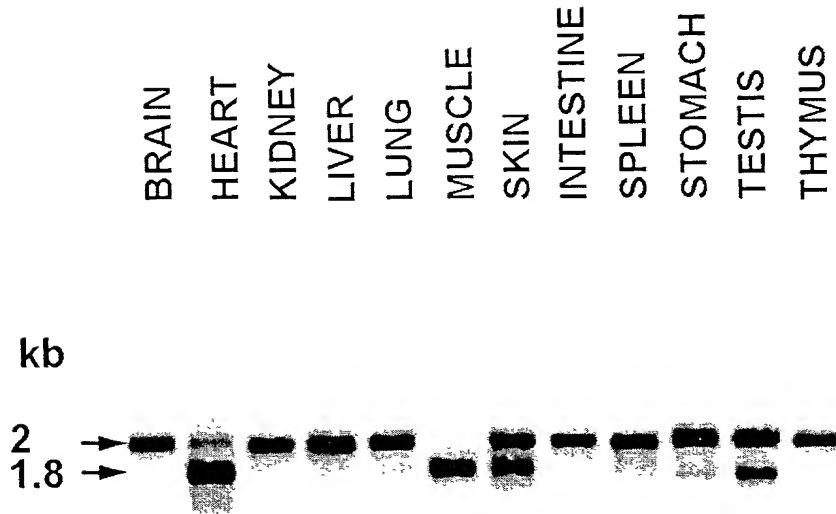
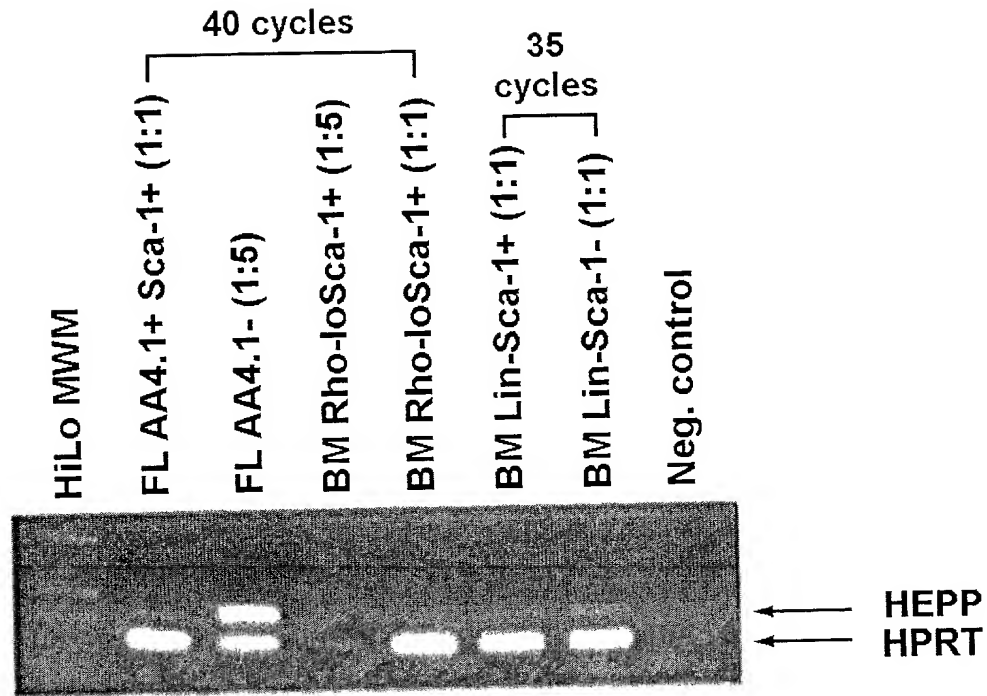


FIGURE 5



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 FIGURE 6

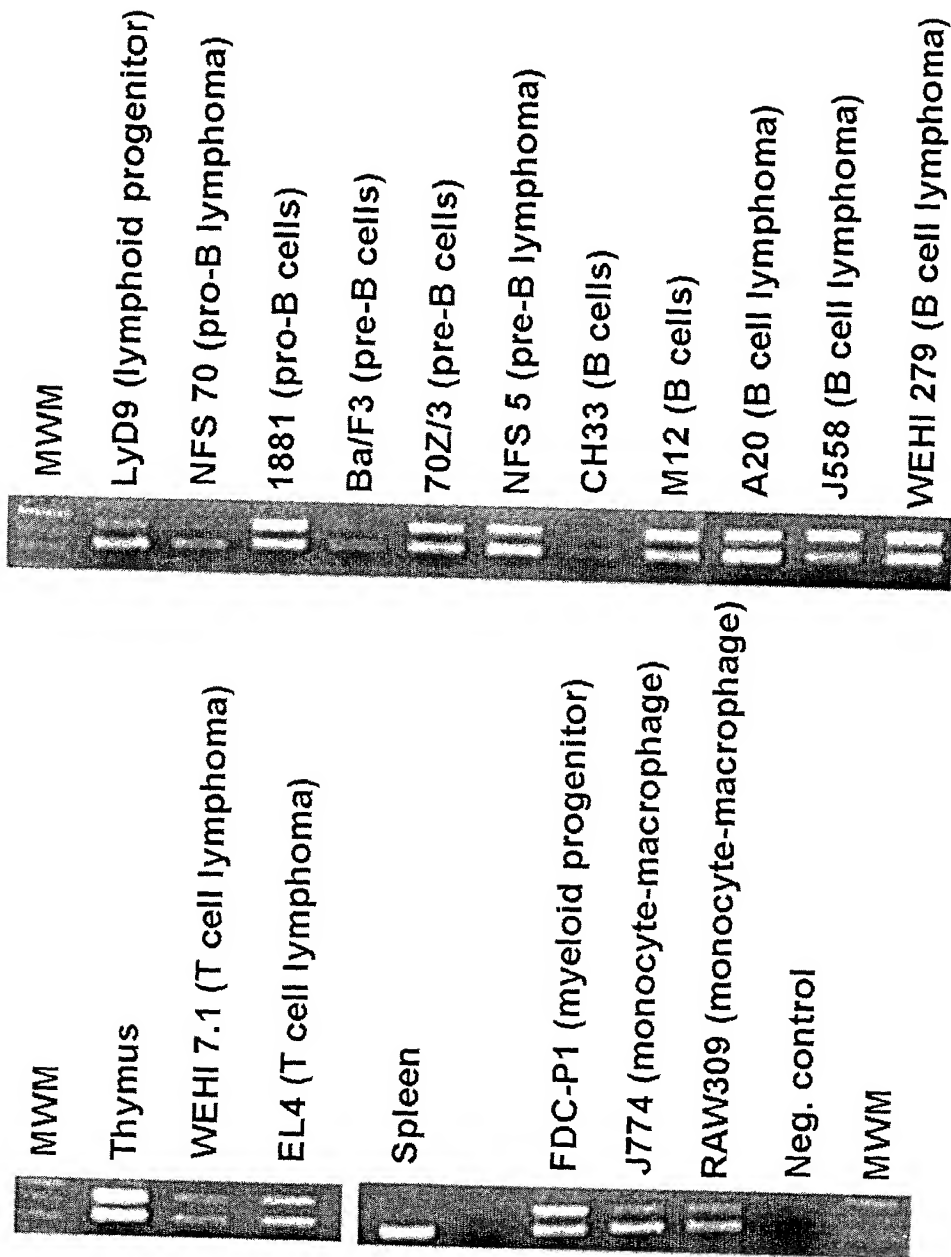
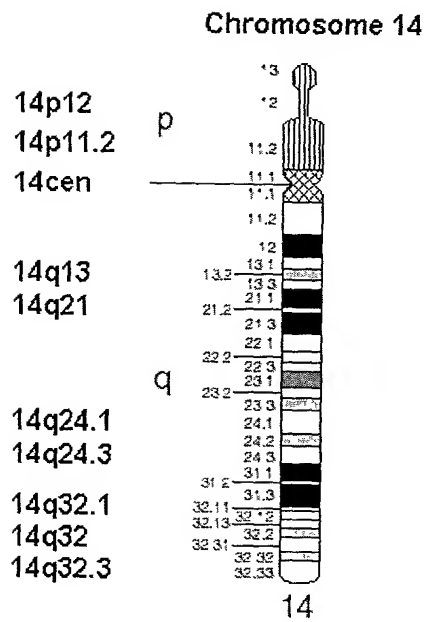


FIGURE 7



translocation breakpoints

FIGURE 8

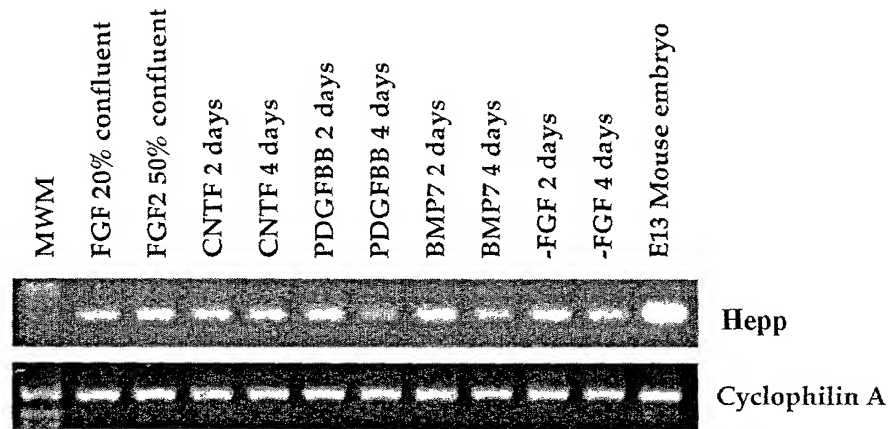
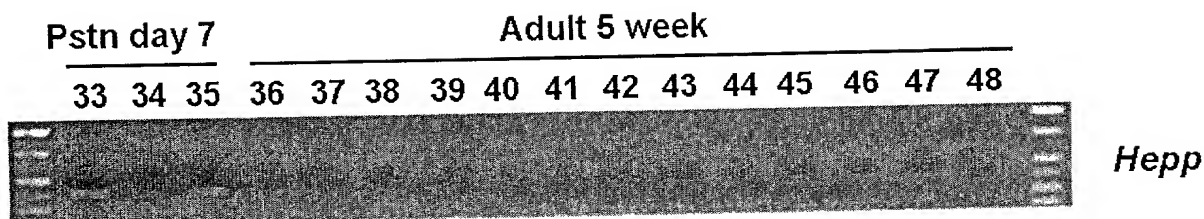
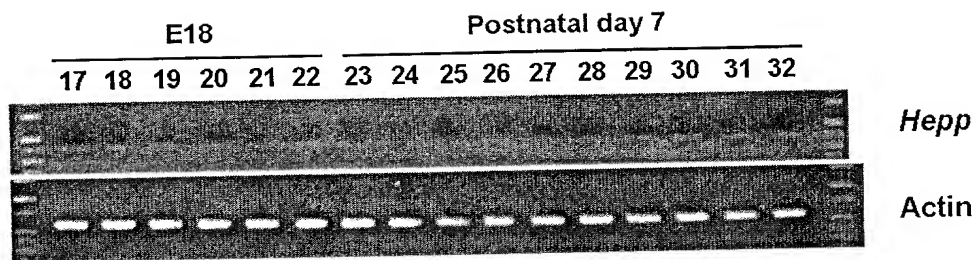
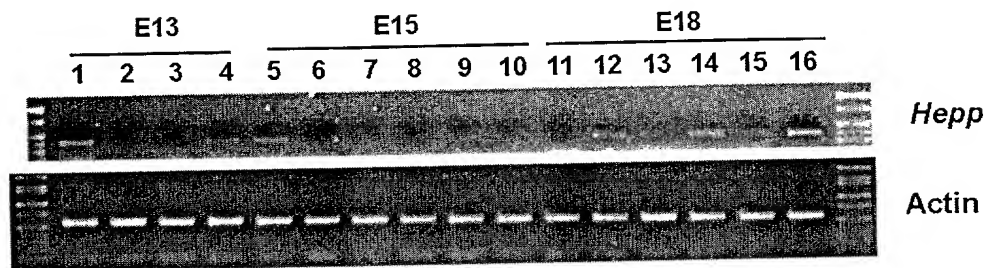


FIGURE 9



- Embryo day 13**
1. Telencephalon/Diencephalon
 2. Mesencephalon (Midbrain)
 3. Rhombencephalon (Hindbrain)
 4. Spinal cord

- Embryo day 15**
5. Telencephalon
 6. Diencephalon
 7. Midbrain
 8. Pons
 9. Medulla
 10. Spinal cord

- Embryo day 18**
11. Frontal cortex
 12. Posterior cortex
 13. Entorhinal cortex
 14. Olfactory bulb
 15. Hippocampus
 16. Striatum
 17. Thalamus
 18. Hypothalamus
 19. Midbrain
 20. Pons
 21. Medulla
 22. Spinal cord

- Postnatal day 7**
23. Frontal cortex
 24. Posterior cortex
 25. Entorhinal cortex
 26. Olfactory bulb
 27. Hippocampus
 28. Striatum
 29. Thalamus
 30. Hypothalamus
 31. Cerebellum
 32. Midbrain
 33. Pons
 34. Medulla
 35. Spinal cord

- Adult 5 week**
36. Frontal cortex
 37. Posterior cortex
 38. Entorhinal cortex
 39. Olfactory bulb
 40. Hippocampus
 41. Striatum
 42. Thalamus
 43. Hypothalamus
 44. Cerebellum
 45. Midbrain
 46. Pons
 47. Medulla
 48. Spinal cord

FIGURE 10

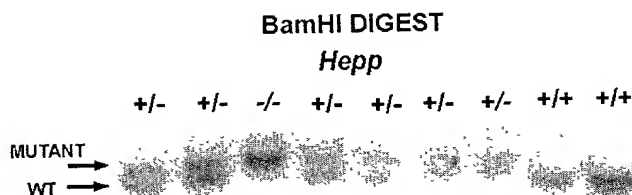
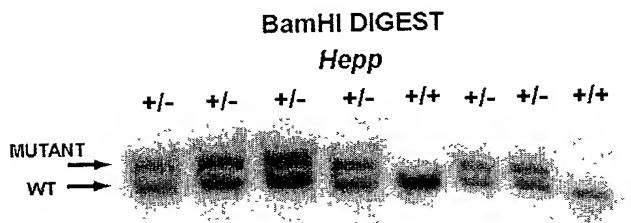


FIGURE 11

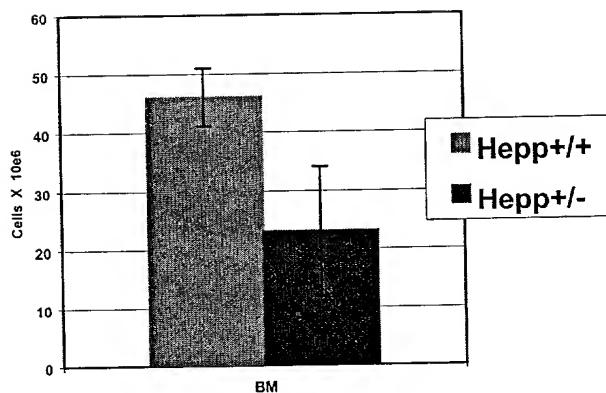


FIGURE 12

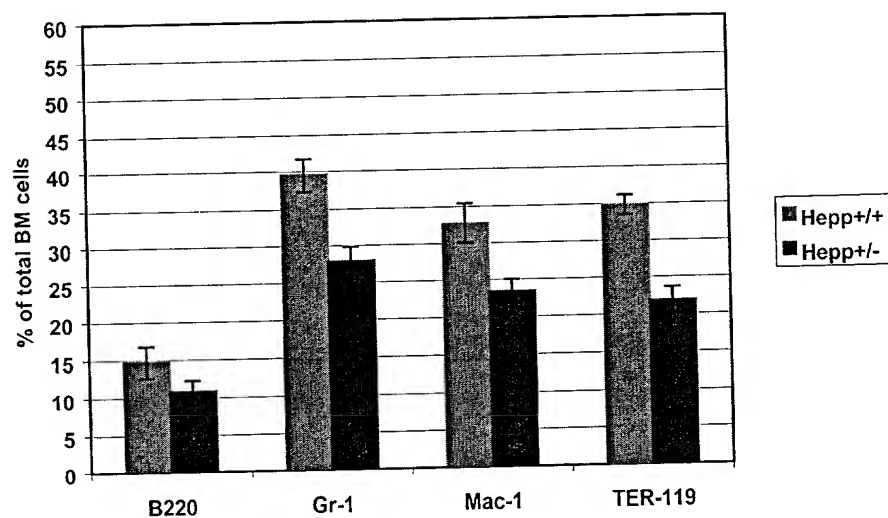


FIGURE 13

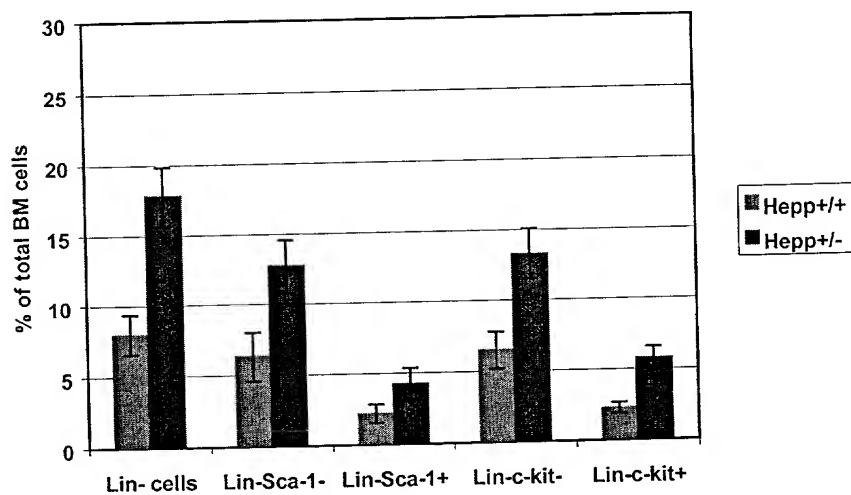


FIGURE 14

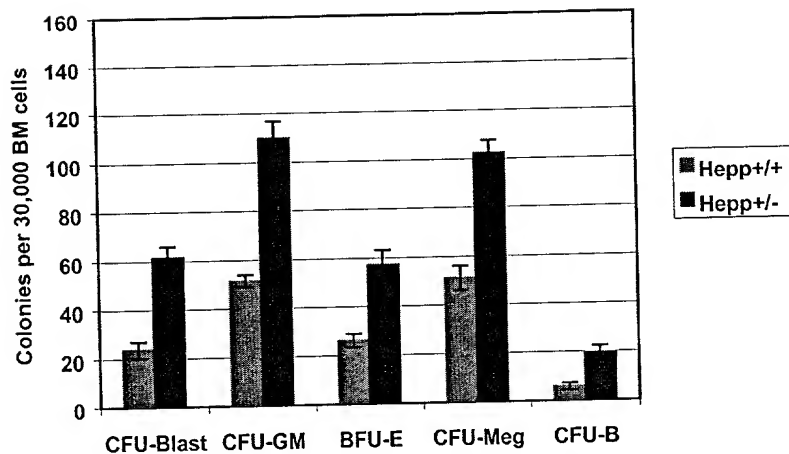


FIGURE 15A-B

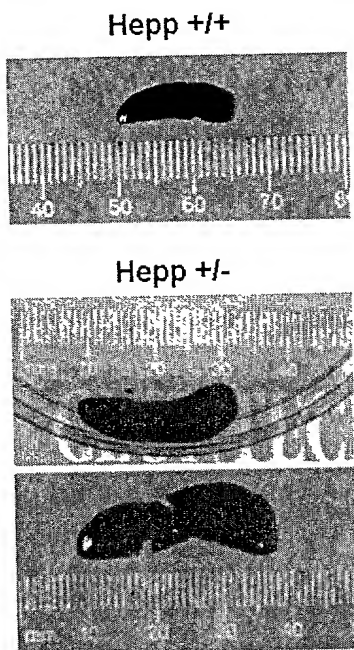


FIGURE 15C

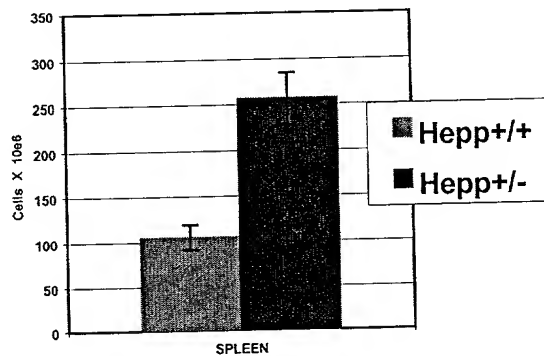


FIGURE 16

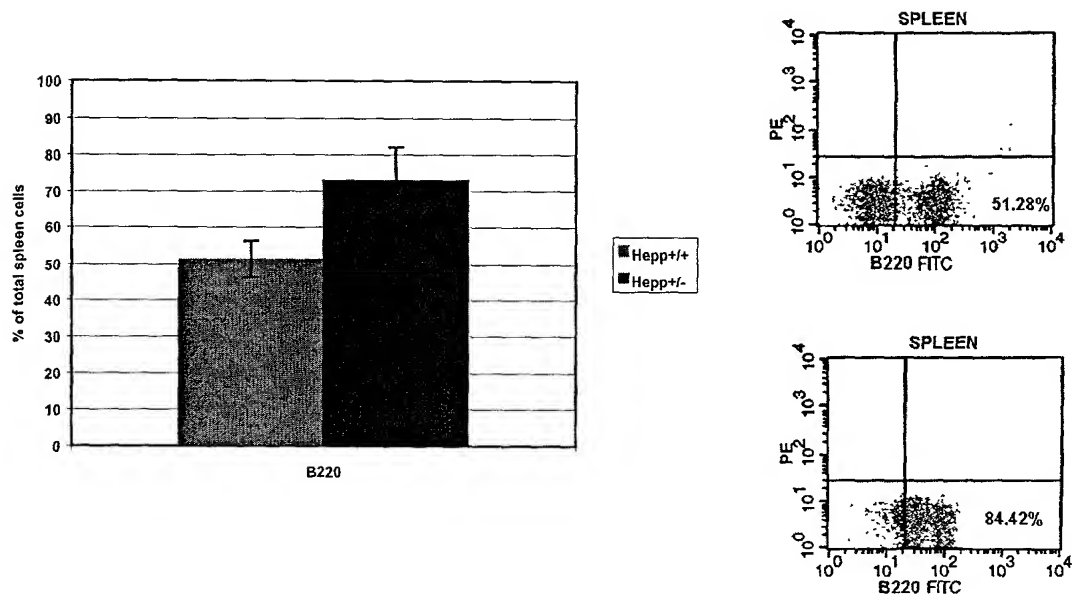


FIGURE 17

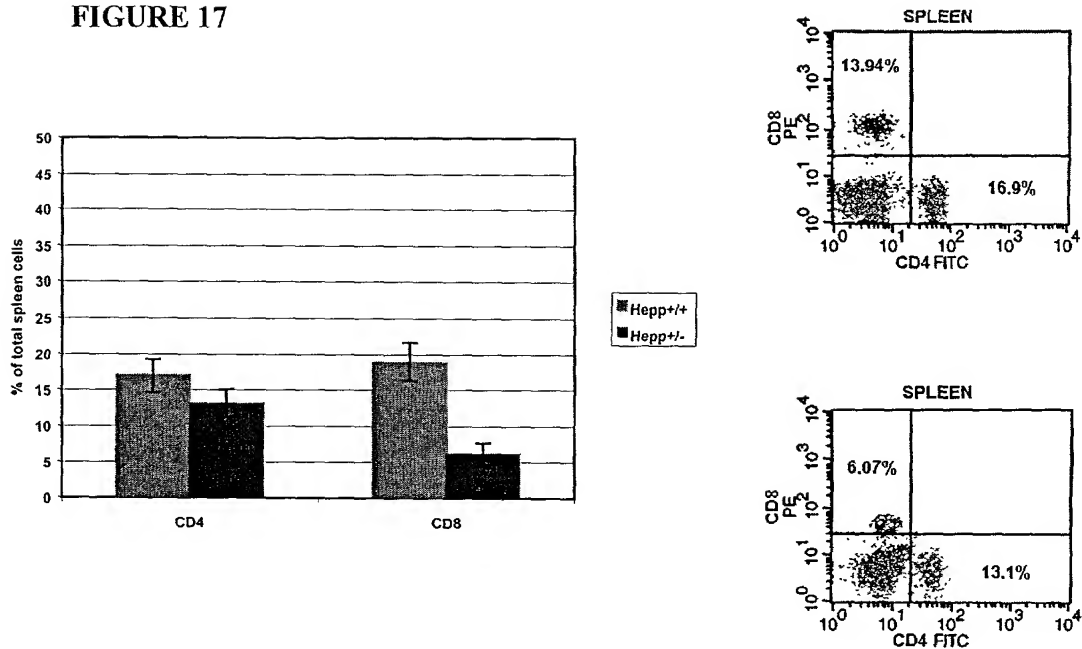


FIGURE 18A

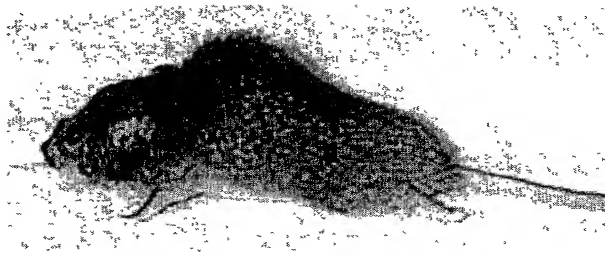


FIGURE 18B

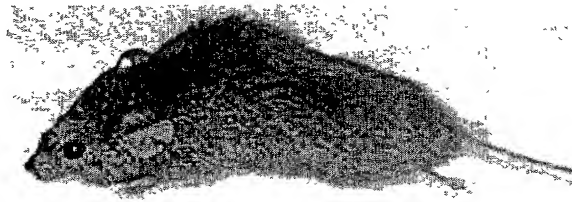
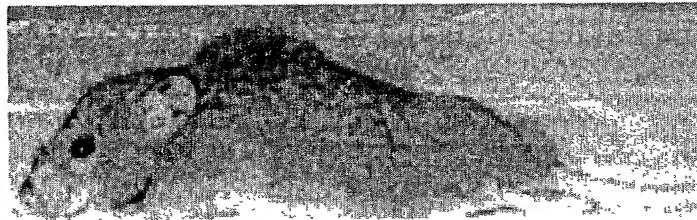


FIGURE 18C



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